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1993 load forecast and integrated least cost resource plan

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Executive Summary

March 1993

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March 25, 1993

Ms. Lois Cashell, Secretary
Federal Energy Regulatory
 Comission
Room 9310
825 North Capitol Street NE
Washington, DC 20426

RE: The Montana Power Company, Project No. 2188

Dear Ms. Cashell:

Submitted herewith on behalf of The Montana Power Company (MPC) are the original and eight (8) copies of MPC's Load Forecast and Integrated Least Cost Resource Plan, March 1993. This updates Appendix C "The Montana Power Company's Load Forecast and Integrated Least Cost Resource Plan, March 1992", of an Application for a New License for the Missouri-Madison Hydroelectric Project, (FERC Project No. 2188).

A copy of this plan and this letter are being served on the Director of the Commission's Portland Regional Office and on each of the resource agencies consulted pursuant to 18 C.F.R. §4.38 or §16.8. A list of those agencies is attached to this letter.

Respectfully submitted,

Mike Manion
MICHAEL P. MANION
Attorney

MPM.as
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Missouri-Madison Hydroelectric Project No. 2188

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1993 Load Forecast and Integrated Least Cost Resource Plan

Executive Summary

The Montana Power Company

March 1993

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Table of Contents

1.0 **Introduction** 1

2.0 **Load Forecast** 1

3.0 **Firm Out-of-State Sales** 1

4.0 **Existing Resources** 2

5.0 **Public and Utility Management Input** 2

6.0 **Integrated Least Cost Planning Process** 3

7.0 **MPC's Integrated Least Cost Resource Plan** 6

8.0 **Action Plan** 9

Executive Summary

1.0 Introduction

This document summarizes The Montana Power Company's (MPC) electric utility 1993 Integrated Least Cost Resource Plan (ILCP). The ILCP process is dynamic which means the ILCP is progressively refined through experience. While the overall ILCP has not changed significantly from 1992, the 1993 ILCP includes the results of a Request for Proposals (RFP) and input from the public. Activities that will influence future MPC integrated least cost resource plans include but are not limited to: 1) the Missouri-Madison Hydroelectric Relicensing Project involving eight MPC hydroelectric sites and one non-generating site, which was filed in November 1992 with the Federal Energy Regulatory Commission (FERC); 2) the guidelines on Integrated Least Cost Resource Planning adopted by the Montana Public Service Commission in December 1992 as defined in the *Administrative Rules of Montana (Utility Division), Subchapter 20, Least Cost Planning - Electric Utilities*; 3) the Energy Policy Act, recently passed by Congress, which amends the Public Utility Regulatory Policies Act; and 4) the continued collaborative effort with the Conservation and Least Cost Planning Advisory Committee and the public. The detailed discussion on each of the summarized sections of this document can be found in the *1993 Load Forecast and Integrated Least Cost Resource Plan* and the *1993 Technical Appendix*.

2.0 Load Forecast

The 1993 base case sales forecast projects from 1992-2016 Residential sector sales to grow at 1.6% (4.1 average MW per year); Commercial sector sales at 1.9% (5.5 average MW per year); Industrial sector sales at 2.3% (2.6 average MW per year); Contract Industrial sector sales at 0.4% (1.1 average MW per year); and Other sector sales at 1.1% (1.0 average MW per year). Total sales, energy, and peak load are all forecast to grow at about 1.5% compounded annually, or 14.4 average MW, 16.3 average MW, and 25.8 MW per year respectively. Alternative growth scenarios were tested in the Risk and Uncertainty Analysis to understand the necessary flexibility requirements of the resource plan in order to address load uncertainty.

3.0 Firm Out-of-State Sales

Current utility out-of-state sales include firm sales to PacifiCorp, Black Hills Power and Light, Washington Water Power, and the Bonneville Power Administration. All of these sales are energy sales and end by the mid-1990s when MPC will need additional resources. These sales were possible for MPC due to MPC's short-term energy surplus condition. These firm out-of-state sales were added to the forecast loads to develop total resource responsibility. However, for planning purposes, the firm out-of-state sales are not used to determine when additional resources are needed.

4.0 Existing Resources

MPC's existing resources include thermal, hydroelectric, utility contracts, demand-side, and interruptible load. MPC's existing thermal resources include the J.E. Corette Plant and Colstrip Units No. 1, 2, and 3 and represent 697 MW of January peak capability. Two diesel generators in Yellowstone National Park at Lake and Old Faithful are available for emergencies only and represent 4.75 MW of peak capability. MPC's hydroelectric system consists of 14 individual projects, 13 of which have generating facilities. MPC plans necessary rehabilitation to four existing hydroelectric resources (Rainbow, Madison, Hauser, Milltown). The hydro facilities represent 489 MW of median water January peak capability. MPC's contract resources represent 304 MW January capacity and include purchases from Washington Public Power Supply System and the Idaho Power Company and power exchanges with the Bonneville Power Administration, Idaho Power Company, and Basin Electric Power Cooperative. Existing qualified facility contracts represent 45 MW of January peak capability. MPC demand-side resources already acquired, from 1987 through the end of 1992, total 8.9 average MW annual energy and 17.0 MW of peak. MPC's only interruptible load is Rhone-Poulenc Basic Chemicals and represents 64 MW of interruptible load.

5.0 Public and Utility Management Input

In a parallel effort to MPC's ILCP process, input was included from MPC Utility Officers, the Conservation and Least Cost Planning Advisory Committee (CLCPAC), Montana Public Service Commission (MPSC) by way of their *Administrative Rules of Montana*, the public meetings and survey, and the Litchfield Consulting Group, Inc. (Litchfield). Five meetings were held with MPC Utility Officers to obtain input to the analysis and to review and approve the results of the process. These meetings were held between April and November 1992. MPC meets regularly with the CLCPAC to discuss integrated least cost resource planning. On more than one occasion, this input prompted additional consideration to particular items in the analysis. Based on available drafts, MPC made a concerted effort to incorporate and follow the MPSC's proposed guidelines on integrated least cost resource planning. The public process included a survey that was inserted in the customers' bills and sent to them in October and November 1992; six public meetings held throughout the state in November 1992; and a second bill insert sent to customers in January 1993. The purpose of the public process was to inform the public, to receive public input, and to discuss the Short List of Resources. MPC asked Litchfield, who has extensive experience in regional least cost planning, to evaluate the integrated least cost resource planning process and MPC's RFP bid process used to develop MPC's ILCP. Litchfield reviewed how resource proposals were evaluated, which models were used to estimate costs and benefits, and how decisions were made that led to recommendations. This review provided confirmation that MPC's ILCP process is fair and follows ILCP principles.

6.0 Integrated Least Cost Planning Process

The process used to develop MPC's ILCP has been expanded since MPC's first ILCP shown in the *1992 Load Forecast and Integrated Least Cost Resource Plan*. Input from MPC management, MPC's Conservation and Least Cost Planning Advisory Committee (CLCPAC), interpretation of the Montana Public Service Commission (MPSC) guidelines, and input from the public have focused MPC's planning process summarized here. A flowchart of MPC's ILCP process is shown in Table 1 on page 11.

It should be noted that the *Administrative Rules of Montana* that outline the ILCP process became final in December 1992. MPC developed its ILCP in parallel with the progression of the MPSC guidelines.

MPC's ILCP process has identified a resource plan comprised of existing and future resources. The ILCP process uses a societal total cost perspective to evaluate resources and resource plans including a thorough Risk and Uncertainty Analysis and a Decision Rule Analysis which encompasses five attributes: customer concerns, investor concerns, environmental concerns, risk and uncertainty, and reliability. Thus, MPC's ILCP is produced from balancing many objectives rather than selecting resources from a single objective.

ILCP Process

While MPC's ILCP is complex, the concept behind the planning process is straightforward. In its most basic form, the ILCP process involves the identification of the need for resources; identification of potential future resources; individual resource evaluation and screening (static analysis of resources); combining individual resources into resource plans (dynamic analysis of resources); analyses of the resource plan for risk and uncertainty; an application of the multi-attribute decision rule to select the best resource plan; and a resource negotiation action plan.

Need

The need for additional resources was established by MPC's first ILCP, the *1992 Load Forecast and Integrated Least Cost Resource Plan*. In addition to an increasing need for resources due to load growth, two existing contracts will expire in 1996. These contracts, 154 MW of peak and 117 average MW of energy, cannot be extended. The uncertainty surrounding the load forecast and future resources were evaluated in the Risk and Uncertainty Analysis. The 1993 load forecast, shown in Section 2.0, became available in mid-1992 and was incorporated into the ILCP process during the Risk and Uncertainty Analysis.

Resource Identification

MPC identified a total of 84 resources totaling over 5500 MW of capacity for evaluation. Three methods were used to identify possible resources. First, supply-side and demand-side resources from MPC's *1992 Load Forecast and Integrated Least Cost Resource Plan*

were incorporated, including possible upgrades at two existing hydro plants (Thompson Falls and Ryan) and life optimization at the F.W. Bird steam plant. Efficiency improvement resources included MPC demand-side resources and utility transmission and distribution efficiency improvements.

Second, MPC identified 76 resources from an all-source competitive bid solicitation issued in July 1991. The 76 projects identified through the RFP process are outlined below:

No. of Proposals Received	Type of Project Received
3	Demand-side and large industrial generation projects
33	Natural gas projects representing about half of total capacity offered
4	Coal/coal gas projects
7	Waste coal projects
1	Petroleum coke project
3	Geothermal projects
7	Hydro projects (including pumped hydro)
13	Wind projects
5	Existing utility proposals

Third, two potential resources from other western region utilities, who did not respond to the RFP process, were identified and included. These resources include an extension of an existing exchange contract and a potential new exchange contract.

In addition to the potential future resources, MPC recognizes that alternative resources may affect the integrated least cost plan in future ILCP planning studies. Other than the submitted RFP wind and geothermal resource bids, alternative resources were not included in the ILCP process. Alternative resources include, but are not limited to, wind, geothermal, Billings MHD plant, solar, fuel cells, and fuel switching.

Static Analysis of Resources

Given the universe of potential resources identified, the second step in the process was to evaluate individual resource characteristics and to reduce the number of resources that would be passed to the Dynamic Analysis. Two steps were used to reduce the number of resources on the working list to 21 (18 supply-side resources and 3 demand-side resources portfolios). The supply-side resources included a set of resources diverse in size, operating characteristics, fuel type, technology, sponsor, and term of contract. This step's selection criteria ranked resources in terms of the cost of a resource versus benefit received, environmental impact, transmission and distribution interconnection concerns, and debt equivalent of purchased power costs. In addition, the selection criteria considered socioeconomic impact, operating characteristics, technology risk, and fuel risk

in screening the resources. Those resources that were not selected were placed on an inactive list. MPC's selection process did allow resources on the inactive list to be moved to the working list if circumstances warranted and allowed it.

Dynamic Analysis

The next step was to build resource plans using various combinations of the working list of resources with existing resources to satisfy the base case load forecast. The Proscreen II computer model built resource plans by considering all possible combinations of future resource with the existing resources. This step's selection criteria identified resource plans that minimized total present value of societal costs, which included environmental impact, and identified a range of plans made up of significantly different resource combinations. Two steps were used to reduce the working list of resources to 12 supply-side resources and 1 demand-side resource. The various combinations of these resources were contained within 13 resource plans. These 13 resource plans were passed to the Risk and Uncertainty Analysis.

Risk and Uncertainty Analysis

Following the Dynamic Analysis was a thorough Risk and Uncertainty Analysis for each of the 13 resource plans. The Risk and Uncertainty Analysis was completed in two phases. Phase 1 included a quantifiable and non-quantifiable analysis and was used in the Decision Rule Analysis. The quantifiable analysis focused on the uncertain future in specific input assumptions used to develop each resource plan. The uncertainties that were studied included load growth uncertainty, economy system sales price uncertainty, fuel price uncertainty, demand-side resources uncertainty, and environmental impact uncertainty, transmission, and the debt equivalent of purchase power costs. The non-quantifiable uncertainty analysis was a discussion of the plans and the resources within the plans. This analysis encompassed items such as environmental impact, transmission uncertainty, reliability, technical feasibility, and resource cost.

Phase 2 of the Risk and Uncertainty Analysis was completed after the Decision Rule Analysis and was used in the development of the Resource Negotiation Action Plan. After the Decision Rule Analysis was complete, additional load forecast and resource information became available. The additional information was significant and warranted a second Risk and Uncertainty Analysis to verify the results of the Decision Rule Analysis. This analysis was used to test the robustness of the Short List of Resources.

Decision Rule Analysis

Multi-attribute decision rule evaluation was the next step in the process. The decision rule attributes encompass customer concerns (for example, short- and long-run total costs, revenue requirements, rates), investor concerns (for example, return on equity and net income), environmental concerns, reliability, and risk and uncertainty. MPC's decision rule allows possibly conflicting measures to be considered and trade-offs to be fairly evaluated. Application of the decision rule identified the best resource plans and, consequently, the resources that make up the Short List of Resources (see Table 2 on

page 12). Combining the Decision Rule Analysis with the Risk and Uncertainty Analysis resulted in the selection of a preliminary ILCP Plan.

Resource Negotiation Action Plan

The Resource Negotiation Action Plan was developed using results from the Decision Rule Analysis, Phase 2 Risk and Uncertainty Analysis, and public input. The Resource Negotiation Action Plan provided input as to the direction the negotiations with resource sponsors should take.

7.0 MPC's Integrated Least Cost Resource Plan

Resource Status

MPC's ILCP, shown in Table 3 on pages 13 and 14, is a combination of existing and future resources to meet our customer's electrical needs. MPC believes that this plan meets the ILCP requirements of the *Administrative Rules of Montana* adopted by the MPSC. Through ongoing negotiation and continued evaluation, resources within the plan could be deleted, replaced, or added. The future resources in the ILCP can be divided into two categories: those evaluated in the ILCP process and those resources evaluated outside of the ILCP process.

First Category

The first category of future resources, evaluated through the ILCP process, were identified in August 1992 as the Short List of Resources. The Short List of Resources are: (1) identified as the most preferred because they best address uncertainty; (2) identified as possible option resources; or (3) remain on the Short List but are in limited negotiation status pending the outcome of other resources on the Short List. The Short List of Resources are described below:

1. Most Preferred

   The most preferred resources were identified through the ILCP process which uses a societal total cost perspective and a thorough Risk and Uncertainty Analysis. These resources are most desired when faced with an uncertain load and resource future. Even though these resources are most preferred, their status could change as a result of negotiations or additional evaluations. The most prescribed resources are described as follows:

   a. MPC's demand-side resources (E+ program) is included.

   b. MPC's life optimization of the F.W. Bird Plant is included with an anticipated on-line date for the 1996-97 winter peak season. Negotiations with LS Power Corporation have recognized an offer to equate the cost of LS re-powering of the facility to MPC's life optimization of the facility.

Because of the short lead time for development and permitting uncertainty, MPC and LS Power Corporation are coordinating current actions such that permits can be obtained for both options. Negotiations are continuing.

c. The upgrade to Thompson Falls hydro facility is projected to be available in early 1996.

d. A new seasonal exchange with the Idaho Power Company is included in the ILCP in 1994. The new exchange will replace the existing exchange contract which would have expired in 1997. Contract negotiations for the new exchange contract are proceeding.

e. A winter purchase from Basin Electric Power Cooperative is included in late 1996 pending the outcome of contract negotiations.

2. Option Resources

The possible option resources could be acquired to help MPC meet its customers' need for resources. Even though these resources are being considered, their status could change as a result of negotiations or additional evaluation. The option resources are discussed below.

a. Ryan hydroelectric upgrade has been included in the ILCP in the year 2001 as an option resource. In analyzing load and resource uncertainty, Ryan was timed into the resource plan under high (1997), base (2001), and low (not timed in) case load growth conditions. Ryan's on-line date should be considered flexible at this time. In the relicensing of the Missouri-Madison hydro facilities, MPC has asked FERC for recognition of on-line date flexibility. FERC's decision concerning the Missouri-Madison application will not be known for some time.

b. Stone Container Corporation's 15 MW pressure reducing turbine is a possible option resource under base or high case load growth conditions. This resource is similar to a demand-side resources in that it resides on the customer's side of the meter and it modifies the load shape. The stakeholder (MPC customers and investors) impacts and risks are being evaluated with contract negotiations pending the outcome of this evaluation.

3. Remain on Short List But are in Limited Negotiation Status

These resources received full evaluation through the ILCP process but are not as preferred as other resources because of cost or other impacts. Even though these resources are not being actively pursued, their status could change as a result of negotiations or additional evaluation, and are outlined below:

a. Tiber Reservoir generation addition of 5 MW

b. Stone Container Corporation's 38 MW combustion turbine

c. Westmoreland's 92 MW combined cycle

In addition to those resources included in the ILCP process, MPC recognized the potential and desirability for development of alternative resources that have not been evaluated through the ILCP process. These resources may include MHD, fuel switching, wind generation, geothermal generation, fuel cells, and solar generation. MPC intends to continue to follow the development of these resources and further evaluate them, using an ILCP process, as additional information warrants.

Second Category

The second category are those resources evaluated outside of the ILCP process because: (1) a contract was in place prior to the ILCP process; (2) the resource is an efficiency improvement and is non-discretionary because of obsolescence or safety-related improvement; or (3) information was not available in time to be evaluated in the ILCP process. These resources evaluated outside of the ILCP process include the following:

1. Transmission and Distribution efficiency improvements
2. Flint Creek hydro facility
3. Madison hydro upgrade
4. Rainbow Hydro upgrade
5. Hauser hydro upgrade
6. Milltown hydro upgrade
7. Billings Generation Inc. (BGI)

Resource Tabulations

In addition to the above resource status, several items on the resource tabulations for energy and peak need to be recognized (see Table 3 on pages 13 and 14).

1. MPC is in the process of negotiating with potential resource sponsors and is continuing to evaluate its own resources. Through this ongoing process, resources within the plan could be deleted, replaced, or added. The plan is subject to change based on further evaluation and the results of negotiation.

2. Transmission and Distribution (T&D) efficiency improvements to MPC's electrical system are recognized even though the data was not available until late 1992. The data to estimate the quantity and cost of the efficiency improvements continues to be developed.

3. A line labeled "Alternative Resources" is shown at the bottom of the resource tabulations recognizing that the opportunity exists for these future resources. As more information on these resources becomes available, they may help fill MPC's future need for electricity.

4. As contract negotiations have moved forward, Billings Generation Inc. deliveries to MPC have increased to 52 MW January peak capacity from 42 MW in last year's plan. While this latest development was received too late to be factored into the ILCP process, it is included in the resource tabulations.

5. Rhone-Poulenc Basic Chemicals is MPC's only interruptible resource. Contract negotiations reflect a tentative agreement where Rhone-Poulenc Basic Chemicals will no longer be considered a firm load obligation after 1996. This information was included in the load uncertainty analysis.

8.0 Action Plan

The following action plan will be used by MPC to implement the ILCP.

1. MPC will continue to acquire through its demand-side (E+) program all cost-effective conservation resources that are consistent with the needs of ILCP and conform to ILCP principles.

2. MPC will continue to negotiate and evaluate the following resources with acquisition of these resources most likely: seasonal exchange with Idaho Power Company; winter purchase from Basin Electric Power Cooperative; Thompson Falls hydro facility; F.W. Bird repowering or refurbishment (life optimization).

3. MPC will continue technical discussions with the LS Power Corporation and proceed with negotiations for the proposed re-powering of the F.W. Bird Facility. Replacing MPC's life optimization option (refurbishment as a peaking unit) with repowering is contemplated while implementing a joint permitting strategy for either option to address permitting risk. Thus, the F.W. Bird Plant can be permitted as a peaking facility should that option be chosen.

4. MPC will work with FERC to try to obtain timing flexibility for the Ryan hydroelectric facility. This timing flexibility will be used to address uncertainty.

5. MPC will continue to evaluate Stone Container Corporation's 15 MW resource. Acquisition of this resource to meet load under base or high case load growth conditions depends on the outcome of further evaluation and possible future negotiations.

6. MPC will continue to monitor and quantify resources acquired through its demand-side (E+) acquisition and transmission and distribution efficiencies to understand and improve the forecasting of cost-effective conservation resources.

7. MPC will continue to monitor and evaluate alternative resources using MPC's ILCP process.

8. MPC will strive to obtain as much flexibility in resource acquisitions to account for deviations in the need for resource identified in MPC's ILCP. MPC will strive to obtain as much flexibility in on-line dates, contract terms including termination, and potential remarketing surplus power should low growth be recognized. MPC will also strive to identify potential short-term resource options that could be exercised if an increased need occurs.

TBL-R1A.WK1

TABLE 1
INTEGRATED LEAST COST PLANNING OPTIMIZATION PROCESS

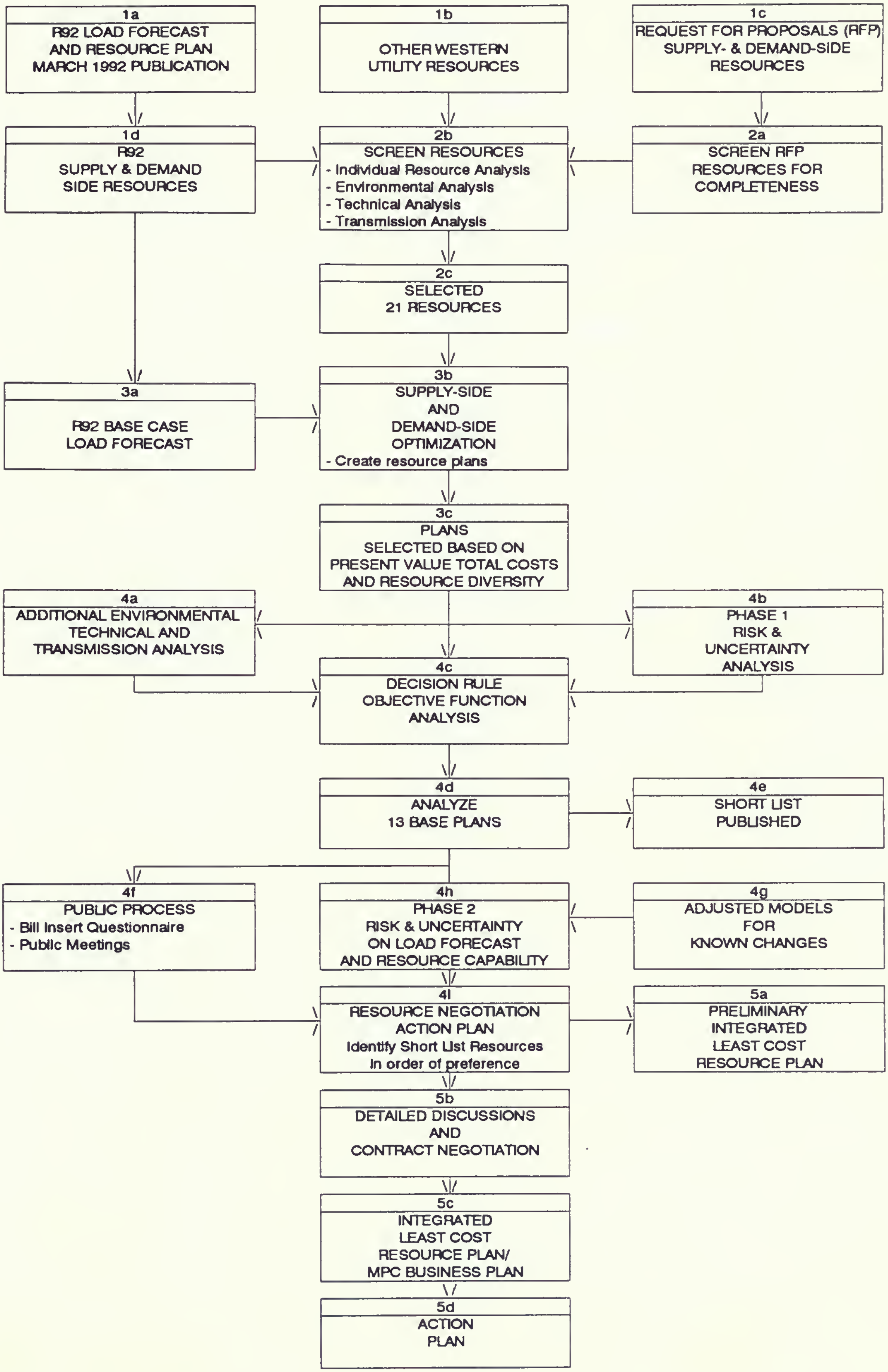

TABLE 2

SHORT LIST OF RESOURCES

MW	SUPPLIER	TYPE OF RESOURCE	LOCATION
92	Westmoreland Energy	Natural gas turbine	Hardin
5	Continental Hydro	Hydroelectric reservoir	Tiber Reservoir
38	Stone Container	Natural gas turbine	Missoula
15	Stone Container	Pressure reduction	Missoula
68	LS Power/Conoco	Coke fuel, F.W. Bird Plant	Billings
50-76	Idaho Power Co.	Seasonal power exchange	Idaho
98	Basin Electric	Seasonal power purchase	N. Dakota
43	Montana Power Co.	Ryan dam upgrade	Great Falls
41	Montana Power Co.	Thompson Falls upgrade	Thompson Falls
60	Montana Power Co.	F.W. Bird upgrade	Billings
116	MPC & customers	Efficiency plus	MPC electric service territory

THE MONTANA POWER COMPANY
ENERGY LOAD FORECAST & RESOURCE TABULATIONS (aMW)

02/19/93 R93EXPND.WK3			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
ANNUAL ENERGY LOAD, AVG MW			982	1007	1033	1058	1078	1096	1111	1123	1134	1144	1154	1164	1175	1189	1203
E+			−8	−16	−27	−40	−52	−64	−74	−83	−90	−95	−98	−102	−105	−108	−111
T&D EFF. IMPROVEMENTS				−1	−1	−2	−2	−3	−4	−5	−5	−5	−6	−6	−6	−6	−6
PACIFICORP SALE			10	10	10												
BLACK HILLS SALE			2														
WWP SALE			36	26													
BPA SALE			27	53	53	27											
RPCHEM REMOVE						−52	−52	−52	−52	−52	−52	−52	−52	−52	−52	−52	−52
NET TOTAL LOAD			1049	1079	1068	991	972	977	981	983	987	992	998	1004	1012	1023	1034
EXISTING RESOURCE, AVG MW			1066	1084	1040	950	902	902	902	902	902	902	902	902	902	902	902
HYDRO @ CRITICAL WATER			335	335	335	335	335	335	335	335	335	335	335	335	335	335	335
CORETTE			122	122	122	122	122	122	122	122	122	122	122	122	122	122	122
COLSTRIP 1,2&3			435	435	435	435	435	435	435	435	435	435	435	435	435	435	435
INTERRUPTIBLE LOAD			3	3	3												
BPA(PK/EN)			−29	−29	−29	−29	−29	−29	−29	−29	−29	−29	−29	−29	−29	−29	−29
WNP#1			67	67	67	29											
IDAHO EXCHANGE			0														
IDAHO PURCHASE			50	50	50	19											
BASIN PURCHASE			44	62	18												
EXISTING QF			39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
+ OR −			17	5	−28	−41	−70	−75	−79	−81	−85	−90	−96	−102	−110	−121	−132
FUTURE @ CRIT WATER	aMW	MW	5	4	32	93	191	199	198	202	202	203	203	203	206	206	209
BGI	47	52			27	47	47	47	47	47	47	47	47	47	47	47	47
FLINT CREEK	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1
MILLTOWN	1	1										1	1	1	1	1	1
MADISON	3	2				1	3	3	3	3	3	3	3	3	3	3	3
HAUSER	3	3								3	3	3	3	3	3	3	3
RAINBOW	9	7					1	9	9	9	9	9	9	9	9	9	9
FW BIRD (1)	65	74					65	65	65	65	65	65	65	65	65	65	65
THOMPSON FALLS (2)	15	41				13	15	15	15	15	15	15	15	15	15	15	15
IPC EXCHANGE (2)	−1	50		−1	−1	−1	−1	−1	−1	−1	−1	−1	−1	−1	−1	−1	−1
BASIN ELEC COOP (2)	42	98				15	42	42	42	42	42	42	42	42	42	42	42
RYAN (3)	1	43									1	1	1	1	1	1	1
STONE CONTAINER (4)	13	15				13	13	13	13	13	13	13	13	13	13	13	13
COMBUSTION TURBINE	3	33													3	3	3
COMBUSTION TURBINE	3	33															3
O.S.S. LOSS			5	4	5	4	5	5	4	5	4	4	4	4	4	4	4
+ OR −			22	9	4	52	121	124	119	121	117	113	107	101	96	85	77
ALTERNATIVE RESOURCES (5)					32	36	40	40	40	40	40	40	40	40	40	40	40

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3. Option resource, timing will vary with the need for resource, FERC must recognize timing flexibility, status may change as a result of further evaluation.
4. Option resource, status of the resource pending further evaluation and negotiations.
5. Quantities for this resource are uncertain and are not included in the balance. This category may include wind, solar, MHD, fuel switching, etc.

THE MONTANA POWER COMPANY
JANUARY PEAK LOAD FORECAST & RESOURCE TABULATIONS (MW)

02/19/93 R93EXPND.WK3			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
WINTER PEAK LOAD, JANUARY MW			1439	1475	1511	1546	1573	1599	1621	1640	1656	1671	1685	1700	1716	1740	1763
E+			–6	–15	–26	–41	–55	–70	–84	–96	–107	–114	–121	–128	–133	–139	–144
T&D EFF. IMPROVEMENTS				–1	–2	–4	–5	–6	–7	–9	–10	–11	–12	–12	–12	–12	–12
PACIFICORP SALE			10	10	10												
BLACK HILLS SALE			30														
WWP SALE			0	0													
BPA SALE			0	0	0	0											
RPCHEM REMOVE						–74	–74	–74	–74	–74	–74	–74	–74	–74	–74	–74	–74
NET TOTAL LOAD			1473	1469	1493	1427	1439	1449	1456	1461	1465	1472	1478	1486	1497	1515	1533
EXISTING RESOURCE, MW			1549	1499	1499	1431	1277	1277	1277	1277	1277	1277	1277	1277	1277	1277	1277
HYDRO @ CRITICAL WATER			435	435	435	435	435	435	435	435	435	435	435	435	435	435	435
CORETTE			160	160	160	160	160	160	160	160	160	160	160	160	160	160	160
COLSTRIP 1,2&3			537	537	537	537	537	537	537	537	537	537	537	537	537	537	537
INTERRUPTIBLE LOAD (6)			68	68	68												
BPA(PK/EN)			100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WNP#1			79	79	79	79											
IDAHO EXCHANGE			50														
IDAHO PURCHASE			75	75	75	75											
BASIN PURCHASE			0	0	0												
EXISTING QF			45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
FORCED OUTAGE RESERVE			186	185	188	180	181	183	183	184	185	185	186	187	189	191	193
+ OR –			–110	–155	–182	–176	–343	–355	–362	–368	–373	–380	–387	–396	–409	–429	–449
FUTURE @ CRIT WATER	aMW	MW	6	56	56	123	338	346	344	349	391	392	391	392	425	425	458
BGI	47	52			0	52	52	52	52	52	52	52	52	52	52	52	52
FLINT CREEK	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1
MILLTOWN	1	1										1	1	1	1	1	1
MADISON	3	2					2	2	2	2	2	2	2	2	2	2	2
HAUSER	3	3								3	3	3	3	3	3	3	3
RAINBOW	9	7						7	7	7	7	7	7	7	7	7	7
FW BIRD (1)	65	74					74	74	74	74	74	74	74	74	74	74	74
THOMPSON FALLS (2)	15	41				0	41	41	41	41	41	41	41	41	41	41	41
IPC EXCHANGE (2)	–1	50		50	50	50	50	50	50	50	50	50	50	50	50	50	50
BASIN ELEC COOP (2)	42	98				0	98	98	98	98	98	98	98	98	98	98	98
RYAN (3)	1	43									43	43	43	43	43	43	43
STONE CONTAINER (4)	13	15				15	15	15	15	15	15	15	15	15	15	15	15
COMBUSTION TURBINE	3	33													33	33	33
COMBUSTION TURBINE	3	33															33
O.S.S. LOSS			6	5	5	5	5	6	4	6	5	5	4	5	5	5	5
+ OR –			–104	–99	–126	–53	–5	–9	–18	–19	18	12	4	–4	16	–4	9
ALTERNATIVE RESOURCES (5)					40	45	50	50	50	50	50	50	50	50	50	50	50

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6. At system input; previous value of 64 MW at customer meter.